

# JVC

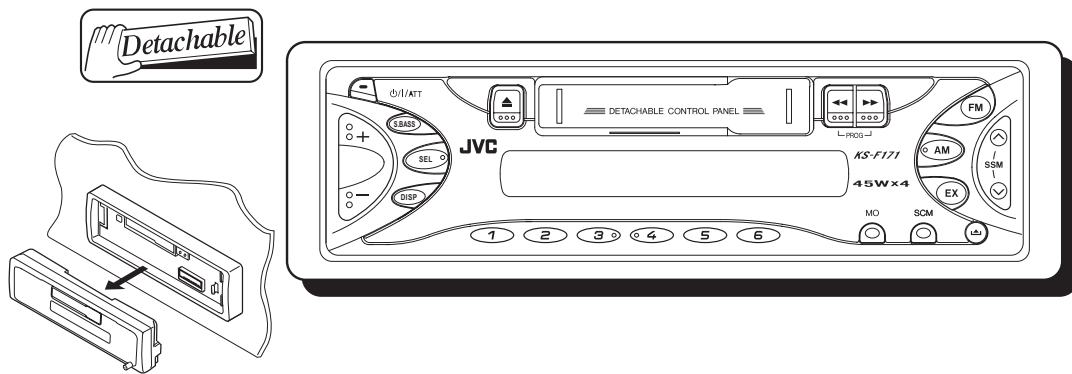
# SERVICE MANUAL

## CASSETTE RECEIVER

# KS-F171

Area Suffix

U ----- Other Areas



## TABLE OF CONTENTS

1	Important Safety Precautions .....	1-2
2	Disassembly method .....	1-3
3	Adjustment method.....	1-12
4	Description of major ICs.....	1-16

# SECTION 1

## Important Safety Precautions

### 1.1 Safety Precautions



**CAUTION** Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of performing repair of this system.

## SECTION 2

### Disassembly method

#### 2.1 Main body

##### 2.1.1 Removing the front panel assembly (See Fig.1)

- (1) Press the release button and remove the front panel assembly.

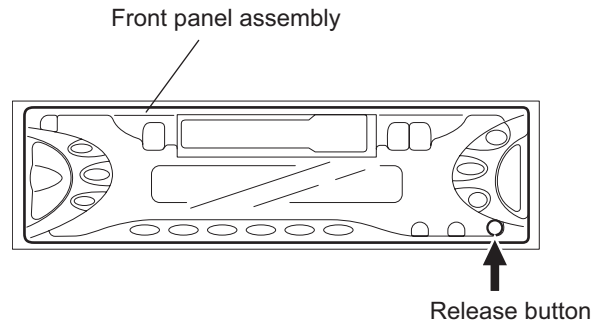


Fig.1

##### 2.1.2 Removing the bottom cover (See Fig.2)

- Prior to performing the following procedure, remove the front panel assembly.
  - (1) Turn the body upside down.
  - (2) Insert a screwdriver under the joints to release the two joints **a** on the left side, the two joints **b** on the right side and the joint **c** on the back of the body, then remove the bottom cover from the body.

#### CAUTION:

When releasing the joint **c** using a screwdriver, do not damage the board.

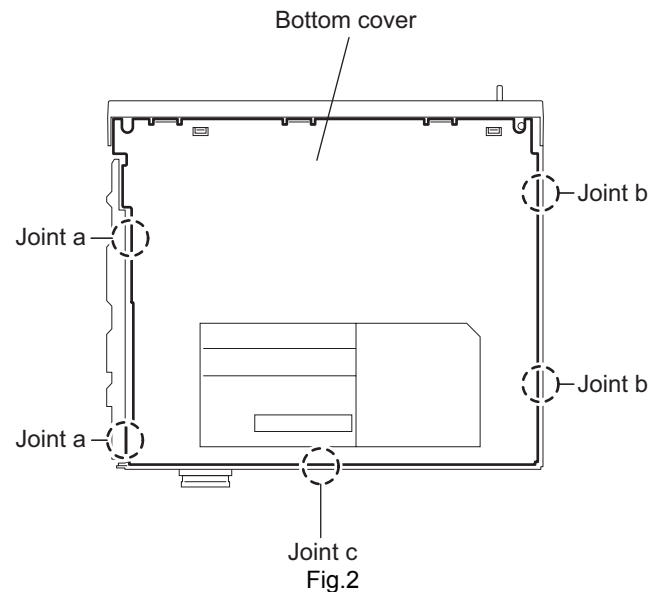


Fig.2

##### 2.1.3 Removing the front chassis (See Fig.3)

- Prior to performing the following procedure, remove the front panel assembly and bottom cover.
  - (1) Remove the screw **A** on each side of the body.
  - (2) Release the two joints **d** and the two joints **e** on the sides, then remove the front chassis toward the front.

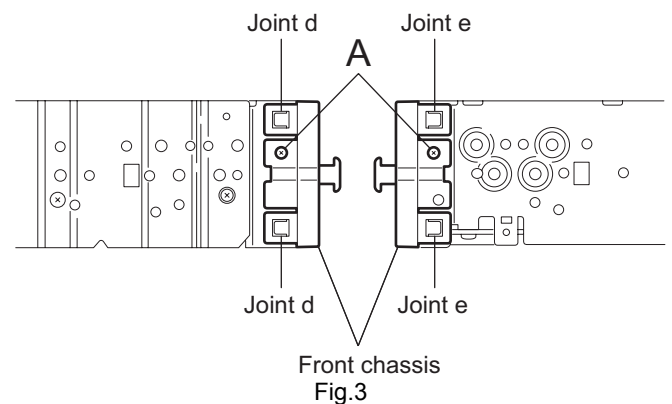
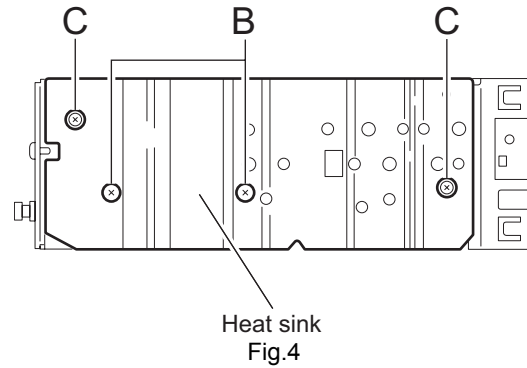


Fig.3

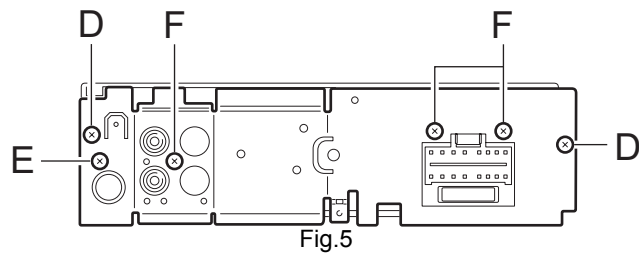
### 2.1.4 Removing the heat sink (See Fig.4)

- Prior to performing the following procedure, remove the front panel assembly.
  - (1) Remove the two screws **B** and two screws **C** attaching the heat sink on the left side of the body, and remove the heat sink.



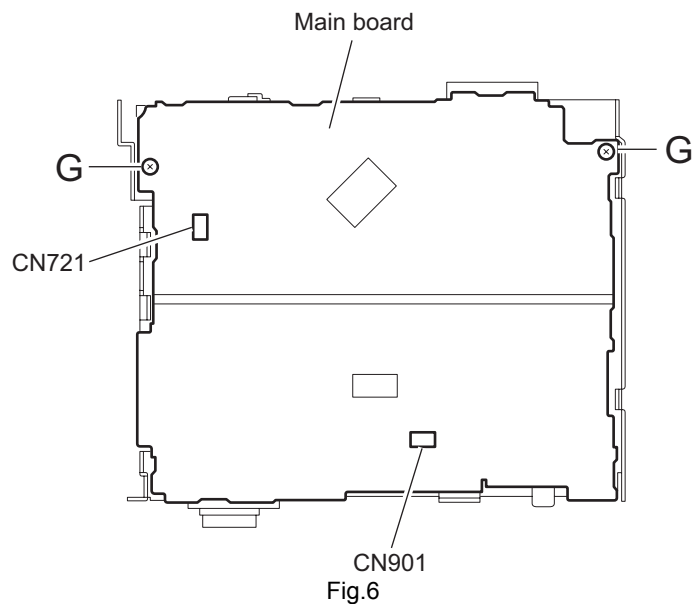
### 2.1.5 Removing the rear panel (See Fig.5)

- Prior to performing the following procedure, remove the front panel assembly and bottom cover.
  - (1) Remove the two screws **D**, one screw **E** and three screws **F** attaching the rear panel on the back of the body.



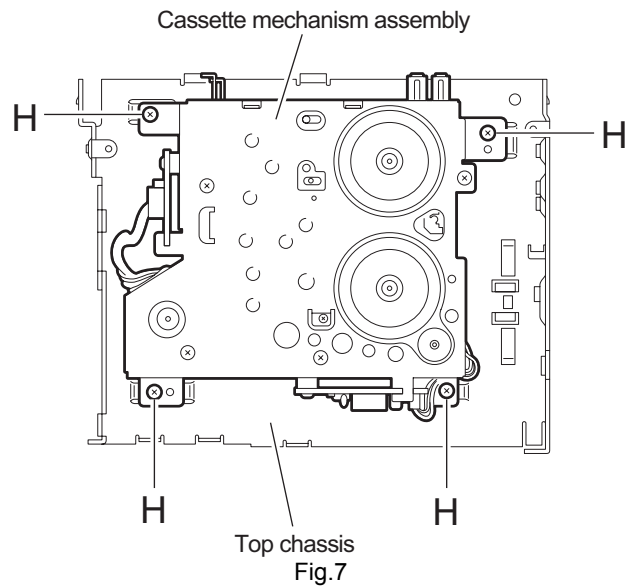
### 2.1.6 Removing the main board (See Fig.6)

- Prior to performing the following procedure, remove the front panel assembly, bottom cover, front chassis, heat sink and rear panel.
  - (1) Remove the two screws **G** attaching the main board on the top chassis.
  - (2) Disconnect the two connectors CN901 and CN721 on the main board from the cassette mechanism assembly.



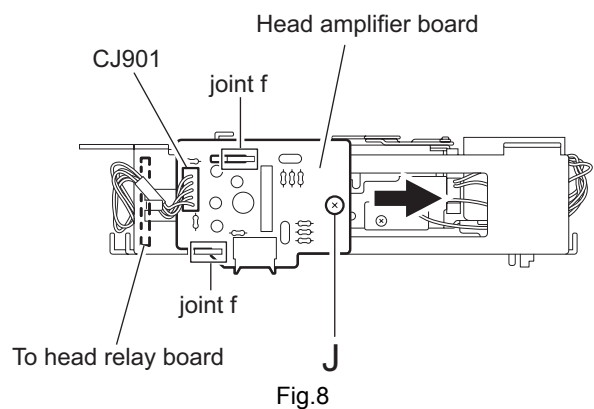
### 2.1.7 Removing the cassette mechanism assembly (See Fig.7)

- Prior to performing the following procedure, remove the front panel assembly, bottom cover, front chassis, heat sink, rear panel and main board.
- (1) Remove the four screws **H** attaching the cassette mechanism assembly from the top chassis.



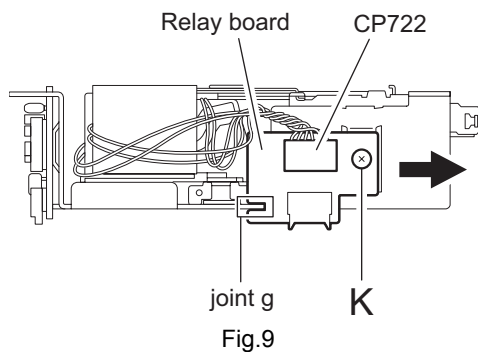
### 2.1.8 Removing the head amplifier board (See Fig.8)

- Prior to performing the following procedure, remove the front panel assembly, bottom cover, front chassis, heat sink, rear panel, main board and cassette mechanism assembly.
- (1) Disconnect the wire from CJ901 on the head amplifier board.
- (2) Remove the one screw **J** attaching the head amplifier board.
- (3) Move the head amplifier board in the direction of the arrow to release the two joints **f**, the head amplifier board can be removed.



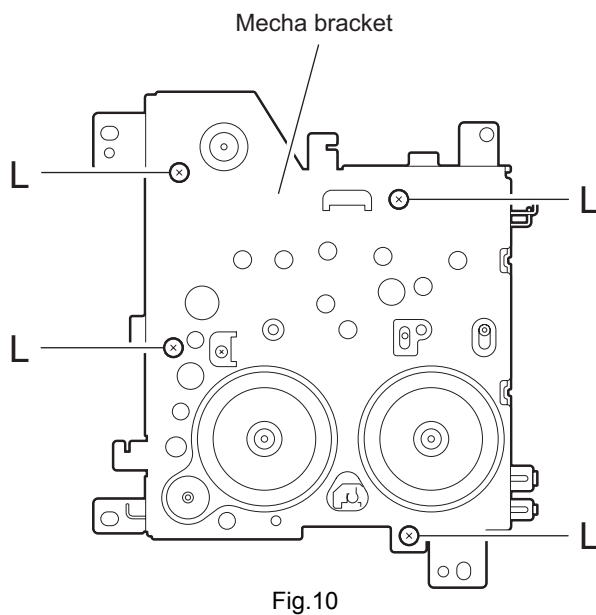
### 2.1.9 Removing the relay board (See Fig.9)

- Prior to performing the following procedure, remove the front panel assembly, bottom cover, front chassis, heat sink, rear panel, main board and cassette mechanism assembly.
  - Disconnect the wire from CP722 on the relay board.
  - Remove the one screw **K** attaching the relay board.
  - Move the relay board in the direction of the arrow to release the joint **g**, the relay board can be removed.



### 2.1.10 Removing the mecha bracket (See Fig.10)

- Prior to performing the following procedure, remove the front panel assembly, bottom cover, front chassis, heat sink, rear panel, main board, cassette mechanism assembly, head amplifier board and relay board.
  - Remove the four screws **L** attaching the mecha bracket.



**2.1.11 Removing the switch (LCD & key) board**  
**(See Fig.11~13)**

- Prior to performing the following procedure, remove the front panel assembly.
  - (1) Remove the four screws **M** attaching the rear cover on the back of the front panel assembly.
  - (2) Release the eleven joints **h**, the front panel and the rear cover become separate.
  - (3) Remove the switch board from the rear cover.

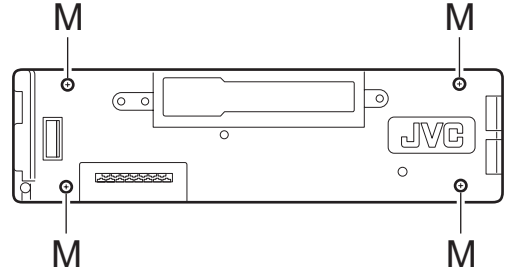


Fig.11

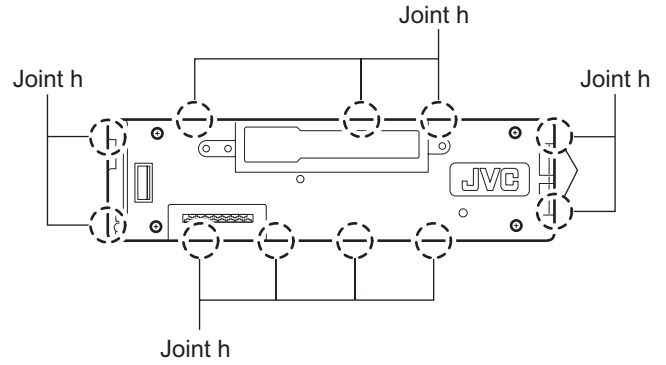


Fig.12

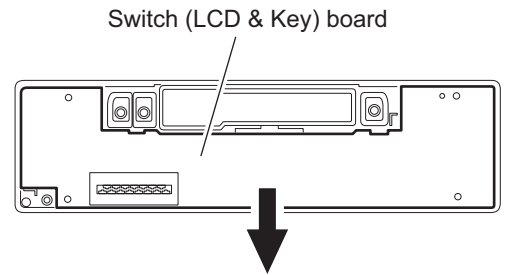


Fig.13

## 2.2 Cassette mechanism assembly

- Prior to performing the following procedures, remove the head amplifier board, the relay board and the mechanism bracket.

### 2.2.1 Removing the direction switch board (See Fig.1)

- (1) Unsolder the three wires **a** on the direction switch board.
- (2) Remove the one screw **A** attaching the direction switch board.

### 2.2.2 Removing the FF / REW lever assembly (See Fig.1)

- (1) Remove the screw **B** attaching the FF / REW lever assembly on the back of the cassette mechanism assembly.
- (2) Remove the screw **C** on the upper side of the FF / REW lever assembly.
- (3) Lift and pull forward the FF / REW lever assembly to disengage the joints **b**, **c**, **d** and **e**.

### 2.2.3 Reattaching the FF / REW lever assembly (See Fig.1)

- (1) Reattach the FF / REW lever assembly to the joint **c** on the back of the chassis.
- (2) Reattach the pinch-roller shaft **e**, the change lever **d** and the return link **e** to the chassis.

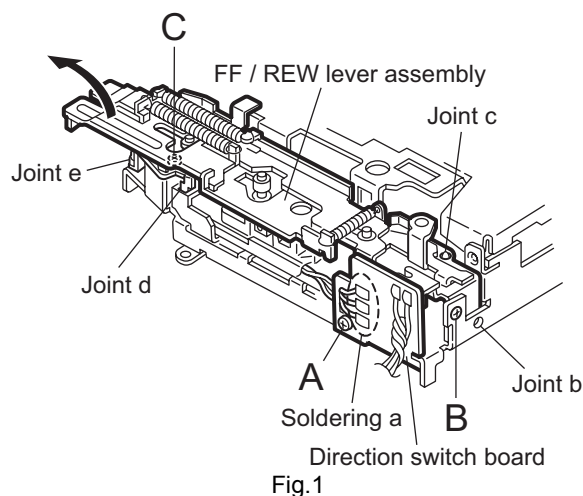


Fig.1

### 2.2.4 Removing the playback head (See Fig.2)

- Prior to performing the following procedure, remove the direction switch board and the FF / REW lever assembly.
  - (1) Remove the screw **D** attaching the playback head.
  - (2) Remove the **C** washer and pull out the FF roller.
  - (3) Remove the **S** support plate, the A arm spring (**a**) and (**b**), the playback head.

#### ATTENTION:

The A arm spring (**a**) differs from the A arm spring (**b**).

### 2.2.5 Removing the pinch-roller (R) and (F) assembly (See Fig.2)

- Prior to performing the following procedure, remove the direction switch board and the FF / REW lever assembly.
  - (1) Remove the P arm spring (**f**) in the pinch-roller (**F**) assembly from the chassis.
  - (2) Remove the P arm spring (**r**) in the pinch-roller (**R**) assembly from the chassis.
  - (3) Draw out the pinch roller (**F**) and (**R**) assembly from the shaft.

#### ATTENTION:

The P arm spring (**f**) differs from the P arm spring (**r**).

#### ATTENTION:

The pinch roller (**F**) assembly differs from the pinch roller (**R**) assembly.

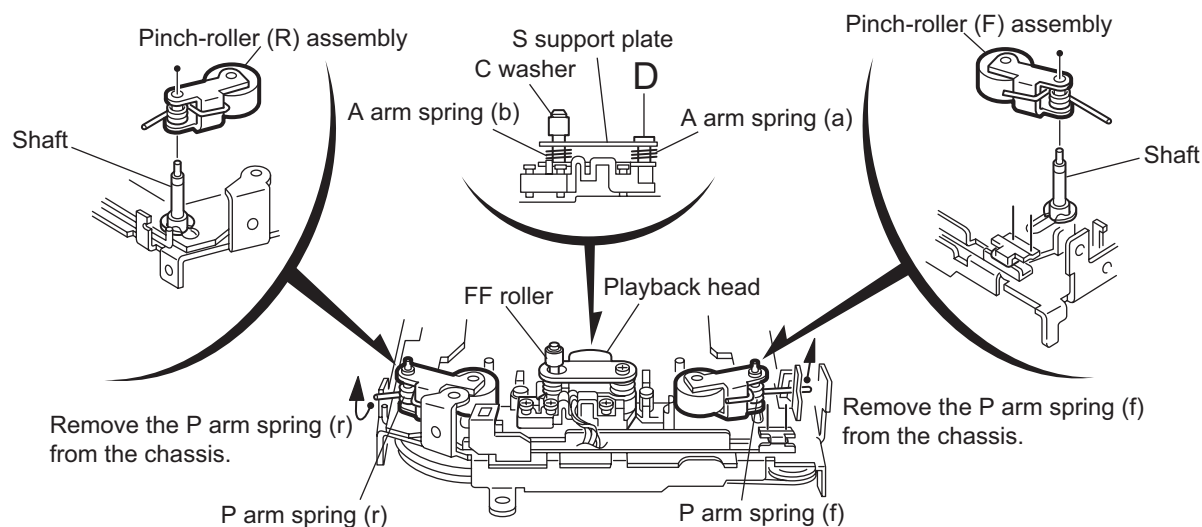
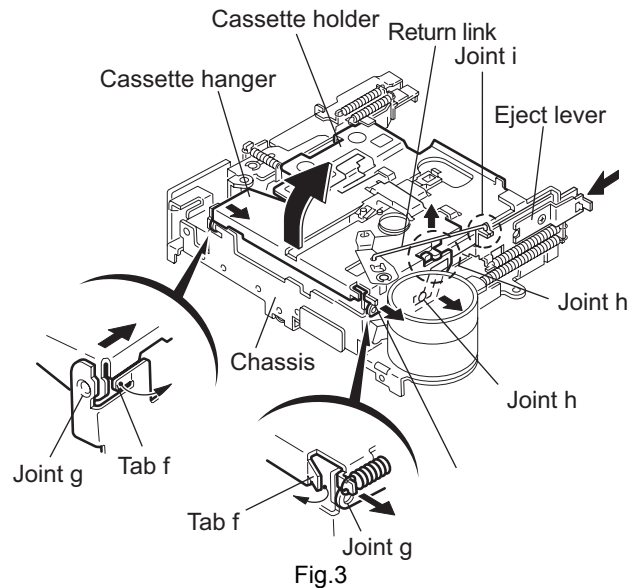


Fig.2



### 2.2.6 Removing the cassette hanger / cassette holder (See Fig.3)

- Prior to performing the following procedure, remove the FF / REW lever assembly.
  - From the rear of the unit, bend the two tabs **f** outwards and disengage the two joints **g** in the direction of the arrow.
  - Push the eject lever and remove the cassette holder from the playback head. Disengage the two joints **h** of the cassette hanger / cassette holder and the eject lever in the direction of the arrow.
  - Lift the cassette hanger / cassette holder and disengage the joint **i** of the return link and the eject lever.

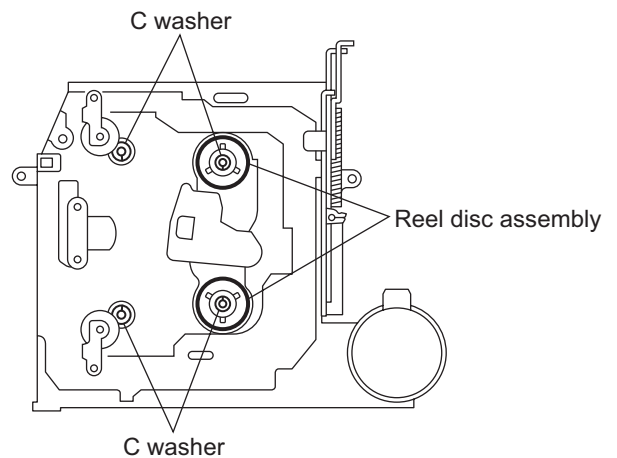


### 2.2.7 Removing the reel disc assembly (See Fig.4)

- Prior to performing the following procedure, remove the FF / REW lever assembly and the cassette hanger / cassette holder.
  - Remove the C washer and pull out reel disc assembly.

#### ATTENTION:

Replace with a new C washer when reattaching.



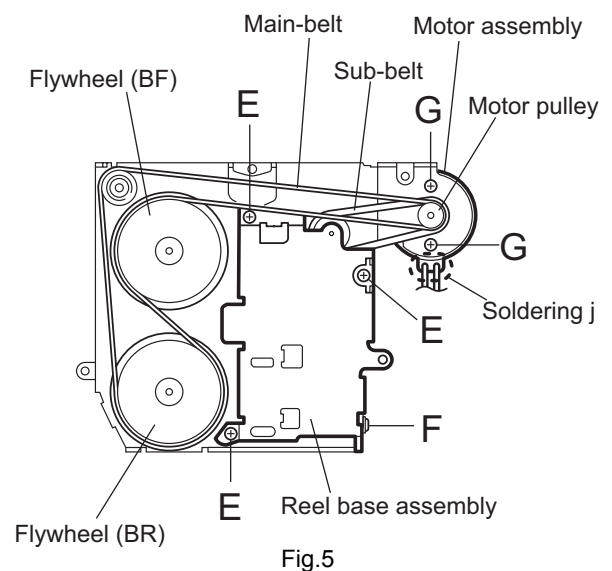
### 2.2.8 Removing the motor assembly (See Fig.5)

- Unsolder the two wires **j** on the motor assembly.
- Turn over the cassette mechanism assembly and remove the main belt and the sub-belt from the motor pulley.

#### ATTENTION:

The main belt can now be removed.

- Remove the two screws **G** attaching the motor assembly.



**2.2.9 Removing the Flywheel (BF) and (BR) assembly  
(See Fig.4 and 5)**

- Prior to performing the following procedure, remove the cassette hanger / cassette holder.
- (1) From the upper side of the cassette mechanism assembly, remove the C washer from each shaft of the flywheel (BF) and (BR).
- (2) Turn over the cassette mechanism assembly and remove the main belt. Pull out the flywheel (BF) and (BR) downward respectively.

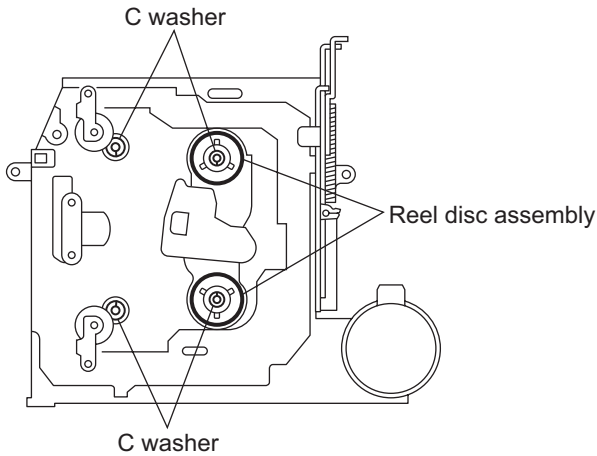


Fig.4

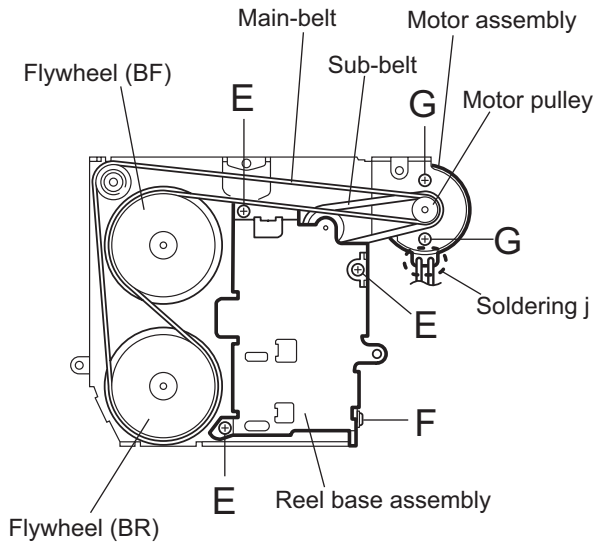


Fig.5

**2.2.10 Removing the reel base assembly  
(See Fig.5 and 6)**

- (1) Raise the part k of the reel base assembly slightly and remove the selector link (B) on the front side of the cassette mechanism assembly by turning it as shown in Fig.6.
- (2) Remove the three screws E and the one screw F on the underside of the cassette mechanism assembly.

**ATTENTION:**

The reel base assembly is not repairable. Handle with care.

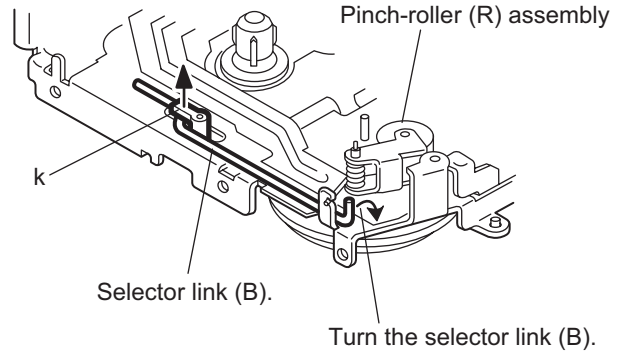


Fig.6

Inside of the reel base assembly

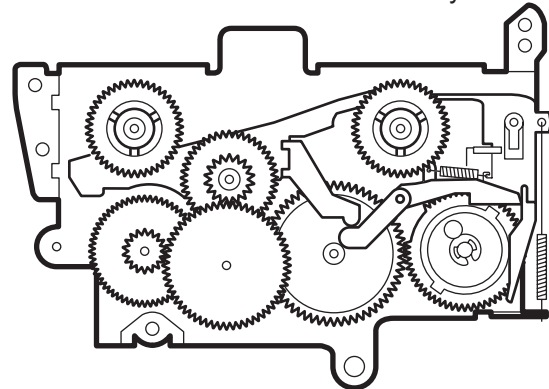
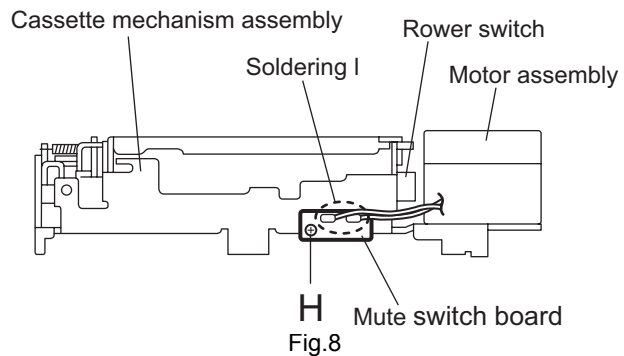


Fig.7

### 2.2.11 Removing the mute switch board (See Fig.8)

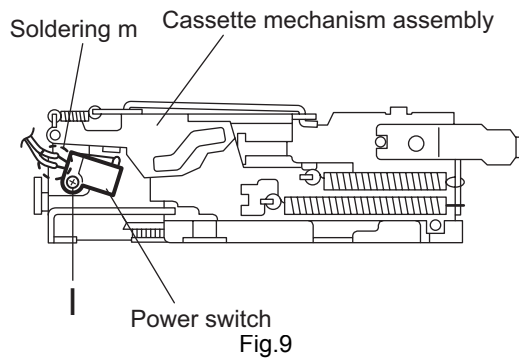
- (1) Unsolder the two wires **I** on the mute switch board on the back of the cassette mechanism assembly.
- (2) Remove the screw **H** attaching the mute switch board.



### 2.2.12 Removing the power switch (See Fig.9)

- Prior to performing the following procedure, remove the motor assembly.

  - (1) Unsolder the two wires **m** on the power switch on the side of the cassette mechanism assembly.
  - (2) Remove the screw **I** attaching the power switch.



## SECTION 3 Adjustment method

### ■ Test Instruments required for adjustment

1. Digital oscilloscope(100MHz)
2. Frequency counter meter
3. Electric voltmeter
4. Wow & flutter meter
5. Test tapes  
 VT724.....for DOLBY level measurement  
 VT739.....For playback frequency measurement  
 VT712....For wow flutter & tape speed measurement  
 VT703.....For head azimuth measurement
6. Torque gauge.....Cassette type for CTG-N  
 (Mechanism adjustment)

### ■ Standard volume position

Balance and Bass, Treble volume, Fader  
 :Center(Indication"0")  
 Loudness,Dolby NR,Sound,Cruise:Off  
 Volume position is about 2V at speaker output with  
 following conditions,Playback the test tape VT721.

AM mode	999kHz/62dB,INT/400Hz,30% modulation signal on receiving.
FM mono mode	97.9MHz/66dB,INT/400Hz,22.5kHz deviation pilot off mono
FM stereo mode	1kHz,67.5kHz dev.pilot 7.5kHz dev
Output level	0dB(1μV,50Ω/open terminal)

### ■ Measuring conditions(Amplifier section)

Power supply voltage..... DC14.4V(11V - 16V allowance)  
 Load impedance..... 4Ω (4Ω to 8Ω allowance)  
 Line out level/Impedance.....1.0V/20kΩ load (250 nWb/m)

### ■ Frequency band

Band	FM: 87.5 MHz to 107.9 MHz
	AM : 530 kHz to 1710 kHz

## ■Information for using a car audio service jig

1. For 1995 and 1996, we're advancing efforts to make our extension cords common for all car audio products. Please use this type of extension cord as follows.
2. As a U-shape type top cover is employed, this type of extension cord is needed to check operation of the mechanism assembly after disassembly.
3. Extension cord : EXTKSRT002-6P ( 6 pin extension cord ) For connection between mechanism assembly and main board.
4. Check for mechanism driving section such as motor ,etc..

## ■Disassembly method

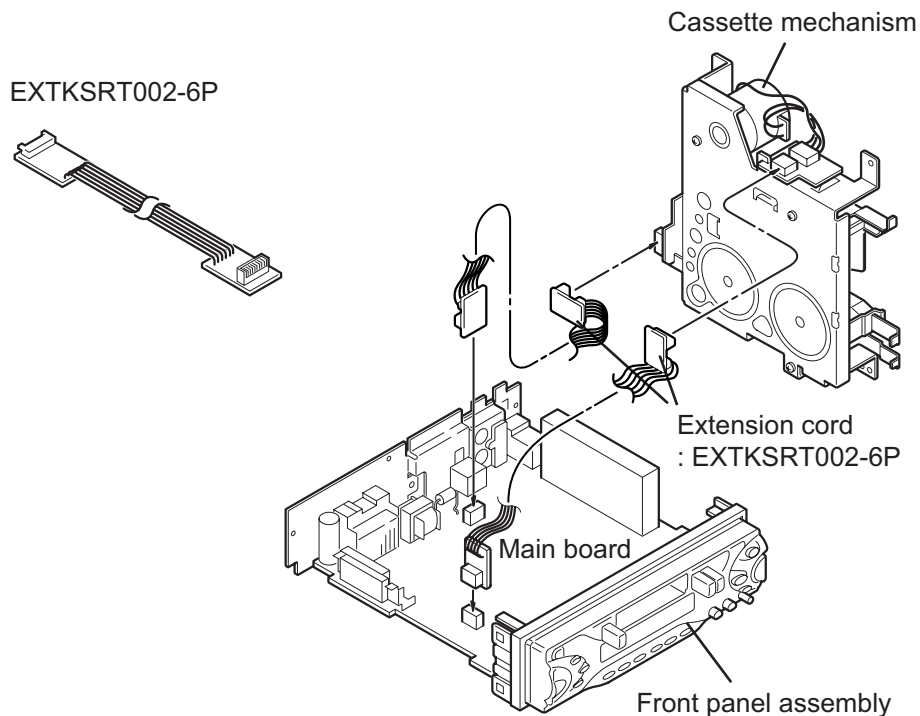
1. Remove the front panel assembly.
2. Remove the bottom cover.
3. Remove the front chassis.
4. Remove the two screws D of the rear panel. (Refer to Disassembly method.)
5. Remove the heat sink.
6. Reattach the heat sink with two screws B.
7. Install the front chassis and front panel assembly.
8. Confirm that current is being carried by connecting an extension cord jig.

Note

Available to connect to the CJ701 connector when installing the front panel.

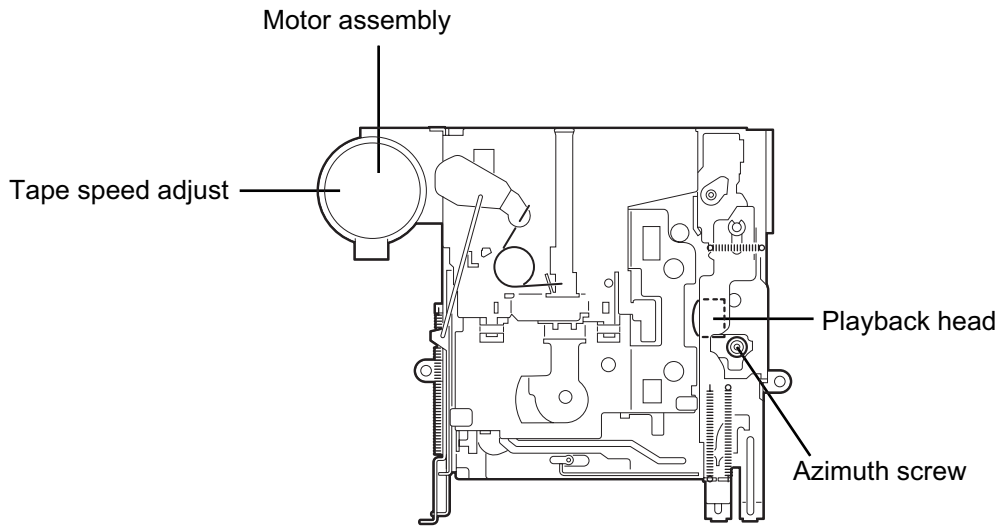
### CAUTION :

**Be sure to attach a heat sink on the power amplifier IC of a main board when supplying the power.  
If voltage is applied without attaching the heat sink, the power amplifier IC will be destroyed by heat.**

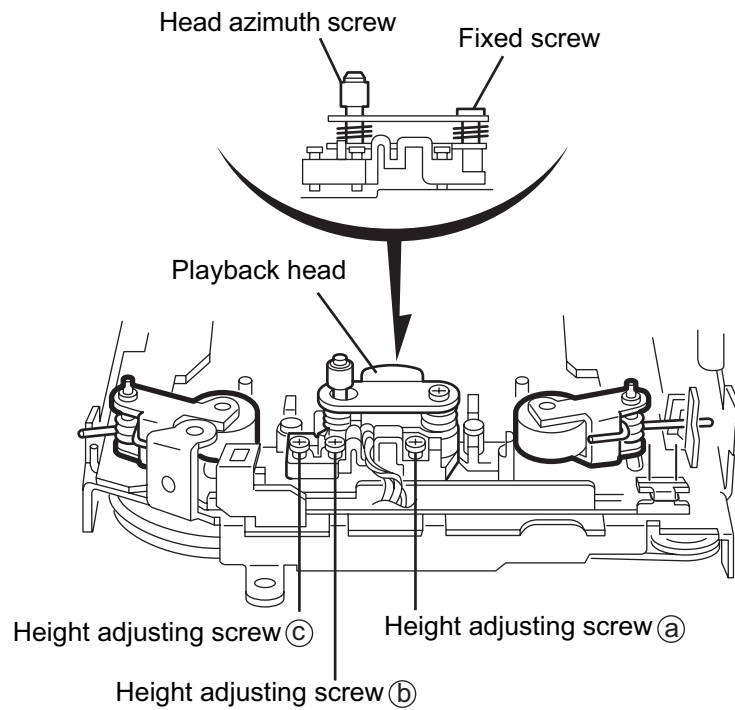


### ■Arrangement of adjusting & test points

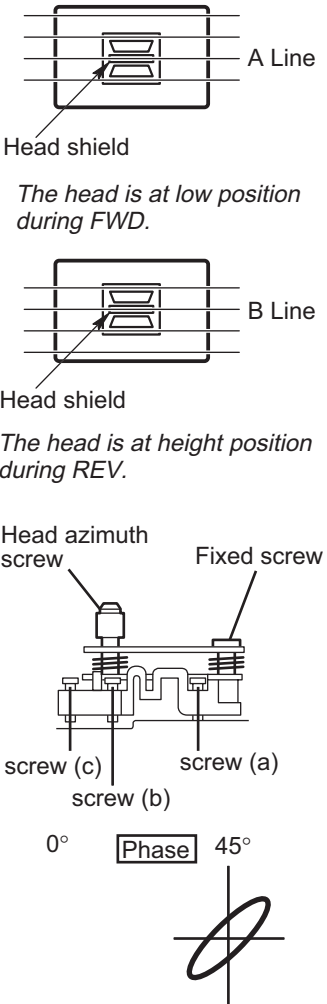
Cassette mechanism  
(Surface)



Head section view



## ■Mechanism adjustment section

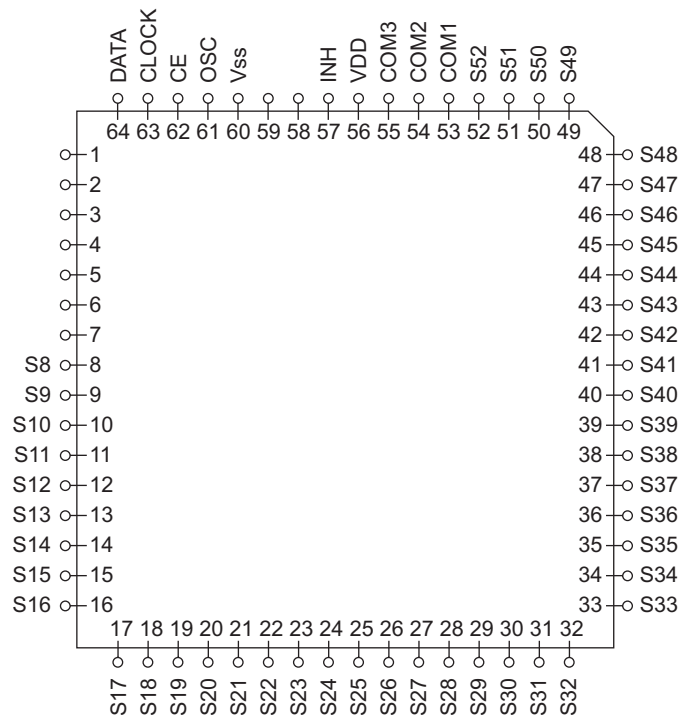
Item	Adjusting & Confirmation Methods	Adjust	Std. Value
1. Head azimuth	<p>"Head Height Adjustment"</p> <p>Note</p> <p>Adjust the azimuth directly. When you adjust the height using a mirror tape, remove the cassette housing from the mechanism chassis.</p> <p>After installing the cassette housing, perform the azimuth adjustment.</p> <ol style="list-style-type: none"> <li>Load the mirror tape ( SCC-1659 ). Adjust with height adjustment screw (a) and azimuth adjustment screw (b) so that line "A" of the mirror tape runs in the center between Lch and Rch in the reverse play mode.</li> <li>After switching from REV to FWD then to REV, check that the head position set in procedure "1" is not changed. *If the position has shifted, adjust again and check.</li> <li>Adjust the azimuth screw (b) so that line "B" of the mirror tape runs in the center between Lch and Rch in the forward play mode.</li> </ol> <p>"Head Azimuth Adjustment"</p> <ol style="list-style-type: none"> <li>Load the test tape ( VT724: 1kHz ) and play it back in the reverse play mode. set the Rch output level to maximum.</li> <li>Load the test tape ( VT703: 10kHz ) and play it back in the forward play mode. Adjust the Rch and Lch output levels to maximum, with azimuth adjustment screw (b). In this case, the phase difference should be within 45°.</li> <li>Engage the reverse mode and adjust the output level to maximum, with azimuth adjustment screw (c). *The phase difference should be 45° or more.</li> <li>When switching between forward and reverse modes, the difference between channels should be within 3dB. *Between FWD Lch and Rch, REV Lch and Rch.</li> <li>When the test tape ( VT721 : 315Hz ) is played back, the level difference between channels should be within 1.5dB.</li> </ol>	 <p>The head is at low position during FWD.</p> <p>The head is at height position during REV.</p> <p>Head azimuth screw</p> <p>Fixed screw</p> <p>screw (c)</p> <p>screw (a)</p> <p>screw (b)</p> <p>0° Phase 45°</p>	
2. Tape Speed and Wow & Flutter	<ol style="list-style-type: none"> <li>Check to see if the reading of the frequency counter &amp; Wow flutter meter is within 2940-3090 Hz ( FWD/REV ), and less than 0.35% ( JIS RMS ).</li> <li>In case of out of specification, adjust the motor with a built-in volume resistor</li> </ol>	Built-in volume resistor	Tape Speed 2940-3090Hz Wow&Flutter Less than 0.35% (JIS RMS)
3. Playback Frequency response	<ol style="list-style-type: none"> <li>Play the test tape ( VT724 : 1kHz ) back and set the volume position at 2V.</li> <li>Play the test tape ( VT739 ) back and confirm <math>0 \pm 3\text{dB}</math> at 1kHz/8kHz and <math>-4+2\text{dB}</math> at 1kHz/125Hz.</li> <li>When 8kHz is out of specification, it will be necessary to read adjust the azimuth.</li> </ol>		Speaker out 1kHz/8kHz : $0\text{dB} \pm 3\text{dB}$ , 125Hz/1kHz : $-4\text{dB} + 2\text{dB}$ ,

## SECTION 4

### Description of major ICs

#### 4.1 LC75823W (IC651) : LCD driver

- Pin Layout & Symbol



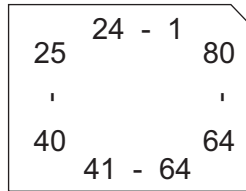
- Pin function

Pin No.	Symbol	I/O	Functions
1 to 7		--	Non connect
8 to 52	S8 to S52	O	Common driver output pins. The frame frequency is given by : $t_0 = (f_{osc}/384)Hz$ .
53	S53 to S55	--	Power supply connection. Provide a voltage of between 4.5 and 6.0V.
57	$\overline{INH}$	I	Display turning off input pin. $\overline{INT} = "L"$ (Vss) ----- off (S1 to S52, COM1 to COM3="L") $\overline{INT} = "H"$ (VDD)----- on Serial data can be transferred in display off mode.
58, 59			Non connect
60	Vss	--	Power supply connection. Connect to GND.
61	OSC	I/O	Oscillator connection. An oscillator circuit is formed by connecting an external resistor and capacitor at this pin.
62	CE	I	Serial data interface connection to the controller. CE : Chip enable
63	CLOCK	I	Serial data interface connection to the controller. CL : Sync clock
64	DATA	I	Serial data interface connection to the controller. DI : Transfer data



#### 4.2 LC72362N-9B39 (IC701) : Micon

- Pin layout



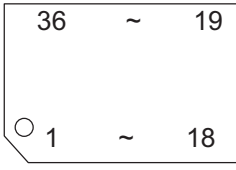
- Pin functions

Pin No.	Symbol	I/O	Function
1	XIN	I	Crystal oscillator
2	GND	-	To GND
3	J BUS SI	I	Bus serial data input from CP751
4	J BUS SO	O	Bus serial data output to CP751
5	J BUS SCK	O	Bus serial clock output to CP751
6	J BUS I/O SEL	O	BUS I/O switch signal output
7	NC	-	Non connect
8	LCD SO	O	Serial data output to IC651
9	LCD SCK	O	Serial clock output to IC651
10	LCD CE	O	Chip enable output to IC651
11	NC	-	Non connect
12	E.VOL SO	O	Serial data output
13	E.VOL SCK	O	Serial clock output
14	CE	-	Chip enable output
15	TUNER ILLUM	-	Non connect
16	TAPE ILLUM	-	Non connect
17	CD ILLUM	-	Non connect
18	DIMMEROUT	-	Non connect
19	NC	-	Non connect
20	NC	-	Non connect
21	NC	-	Non connect
22	NC	-	Non connect
23	NC	-	Non connect
24	NC	-	Non connect
25	KS1	-	Non connect
26	KS0	O	Initializing output port
27	K3	I	Initializing input port
28	K2	I	Initializing input port
29	K1	-	Non connect
30	K0	I	Initializing input port
31	Vdd	-	Power supply
32	TEST	I	Test input
33	NC	-	Non connect
34	SEEK/STOP	O	Output the "If signal request"
35	MONO	O	Monaural and stereo change over output
36	R/T	-	Non connect
37	NC	-	Non connect
38	POWER CNT	O	Power control output
39	NC	-	Non connect
40	NC	-	Non connect
41	IF CONT	-	Non connect
42	NC	-	Non connect

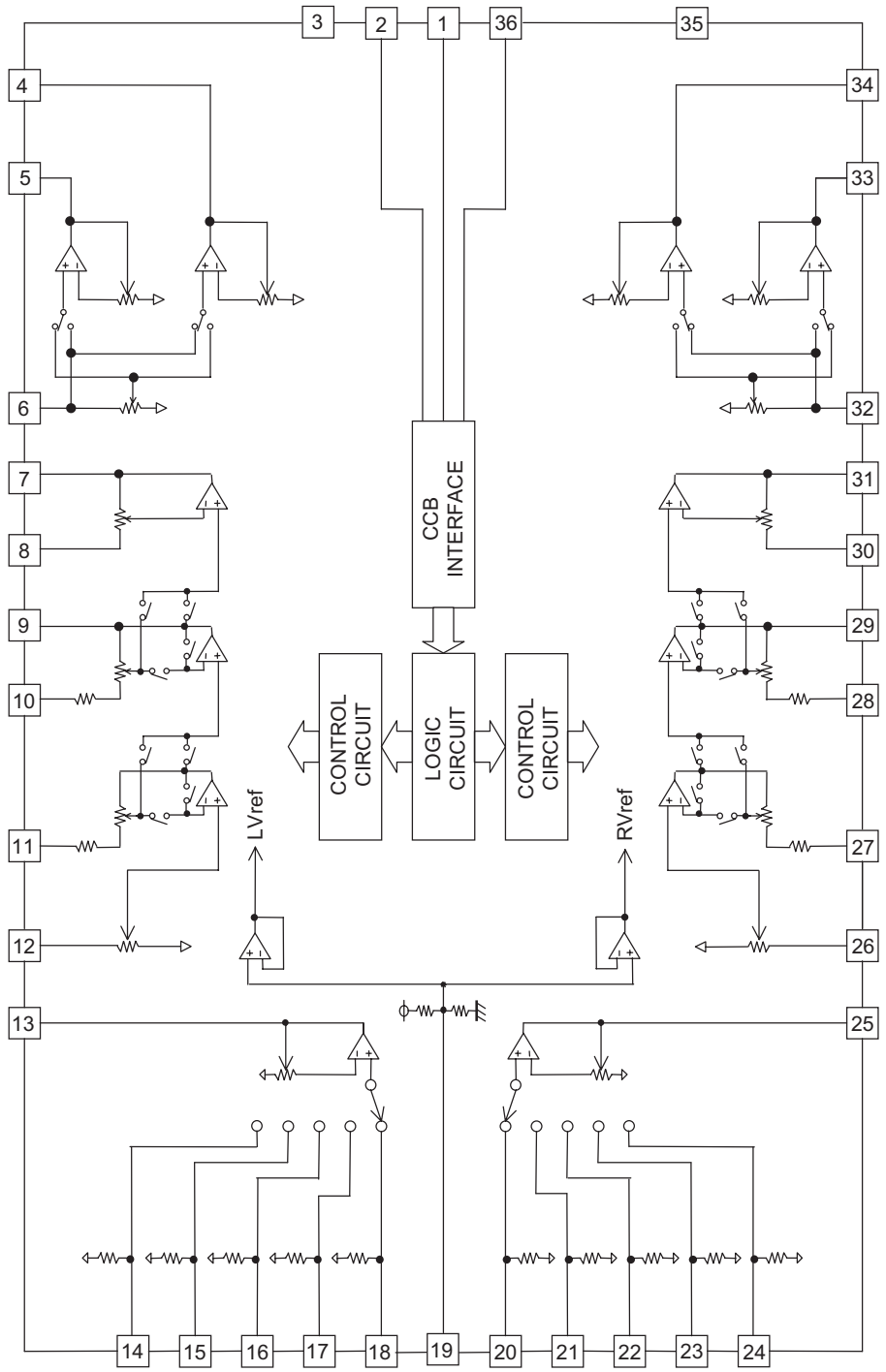
Pin No.	Symbol	I/O	Function
43	NC	-	Non connect
44	NC	-	Non connect
45	NC	-	Non connect
46	NC	-	Non connect
47	NC	-	Non connect
48	TAPE IN	I	H:RADIO L:TAPE
49	F/R SENCE	I	FORWARD/REVERSE switch detector
50	TAPE MUTE	I	DIR.FF/REW.MUTE
51	SD/ST	I	Station detector and ST input
52	NC	-	Non connect
53	DETACH	I	Detection of Front Panel
54	NC	-	Non connect
55	J BUS INT	I	BUS interruption signal detection communication
56	REMOCON	-	TO GND
57	FM/AM	I	Change over the FM/AM input
58	DOLBY	-	Non connect
59	NC	-	Non connect
60	MUTE	-	The mute time is controlled by the connected
61	MEMORY DET	I	Memory detector input
62	LEVEL METER	I	-----
63	SMETER	I	Signal meter input
64	KEY 2	I	Momentary key input
65	KEY 1	I	Momentary key input
66	KEY 0	I	Momentary key input
67	ACCDET	I	ACC DET
68	SENS	-	To GND
69	NC	I	Non connect
70	FM/AM IF COUNT	-	AM/FM Frequency detection
71	NC	-	Non connect
72	NC	-	Non connect
73	Vdd	I	Power supply
74	AM OSC	I	Input the local oscillator signal of AM
75	FM OSC	-	Input the local oscillator signal of FM
76	Vss	-	Power supply
77	NC	-	Non connect
78	EO	-	PLL Error signal output
79	TEST 1	O	To GND
80	XOUT	O	Crystal oscillator

4.3 LC75421M-X (IC931): E. volume

- Pin layout



- Block diagram

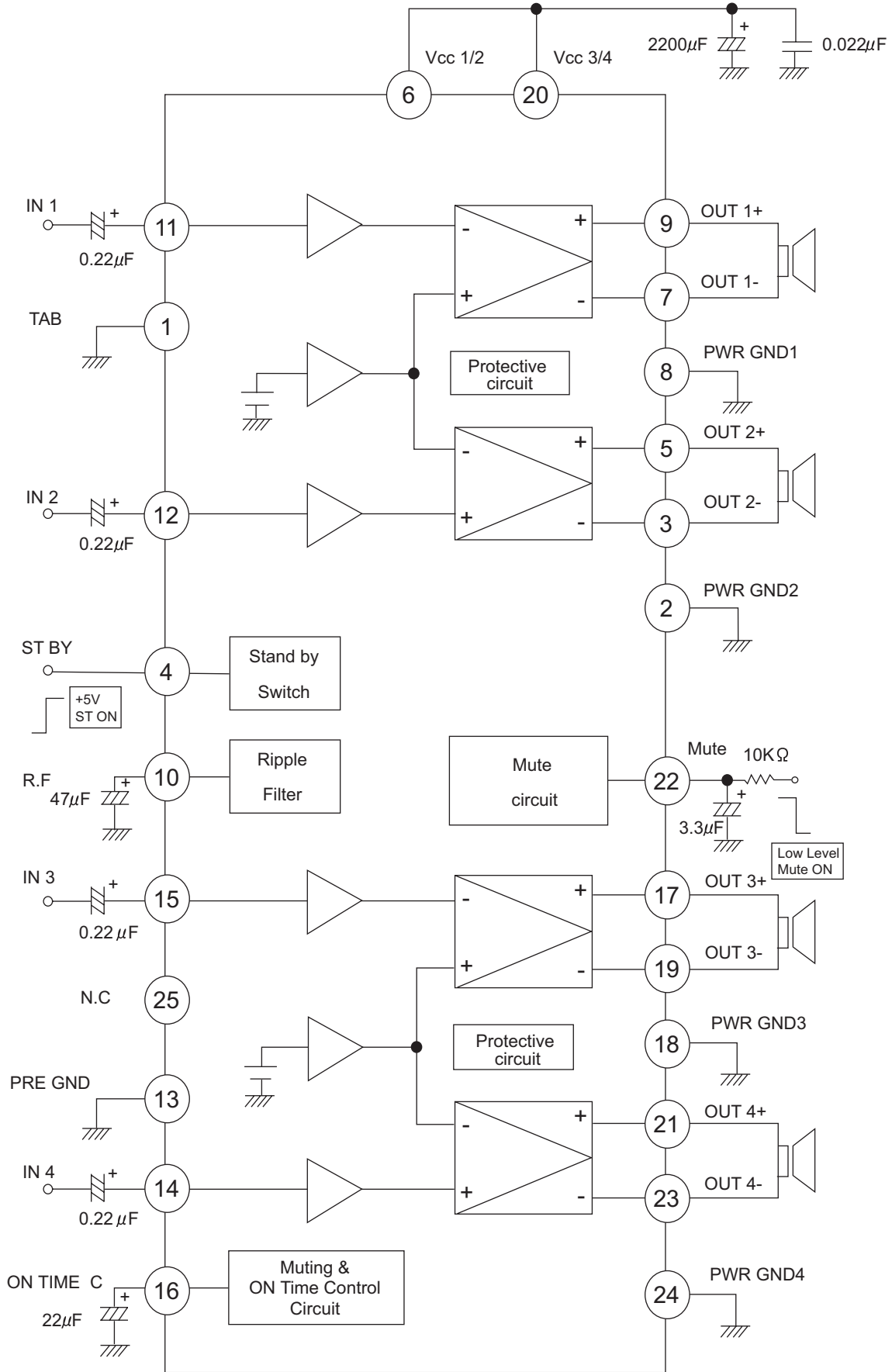


## • Pin functions

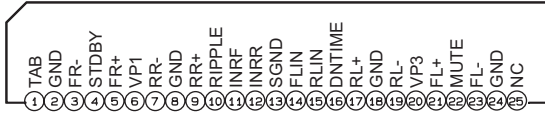
Pin No	Symbol	Function
1	DI	Serial data input terminal for control
2	CE	Chip enable terminal
3	VSS	GND
4	LROUT	Rear Lch fader output terminal
5	LFOUT	Front Lch fader output terminal
6	LFIN	Front Lch input terminal
7	LOUT	C & R connection terminal for super bass band
8	LSB	C & R connection terminal for super bass band
9	LBASS2	C & R connection terminal for bass band
10	LBASS1	C & R connection terminal for bass band
11	LTRE	Capacitor connection terminal for treble band filter
12	LIN	Lch input terminal
13	LSELO	Input selector output terminal
14	L5	input signal terminal
15	L4	input signal terminal
16	L3	input signal terminal
17	L2	input signal terminal
18	L1	input signal terminal
19	Vref	Power supply for analog GND
20	R1	input signal terminal
21	R2	input signal terminal
22	R3	input signal terminal
23	R4	input signal terminal
24	R5	input signal terminal
25	RSELO	Input selector output terminal
26	RIN	Rch input terminal
27	RTRE	Capacitor connection terminal for treble band filter
28	RBASS1	C & R connection terminal for bass band filter
29	RBASS2	C & R connection terminal for bass band filter
30	RSB	C & R connection terminal for super bass band filter
31	ROUT	C & R connection terminal for super bass band filter
32	RFIN	Rch input terminal
33	RFOUT	Front Rch fader output terminal
34	RROUT	Rear Rch fader output terminal
35	VDD	Power supply terminal
36	CL	Serial clock output terminal for control

4.4 LA4743K (IC981) : Power amp.

- Block diagram



- Terminal layout

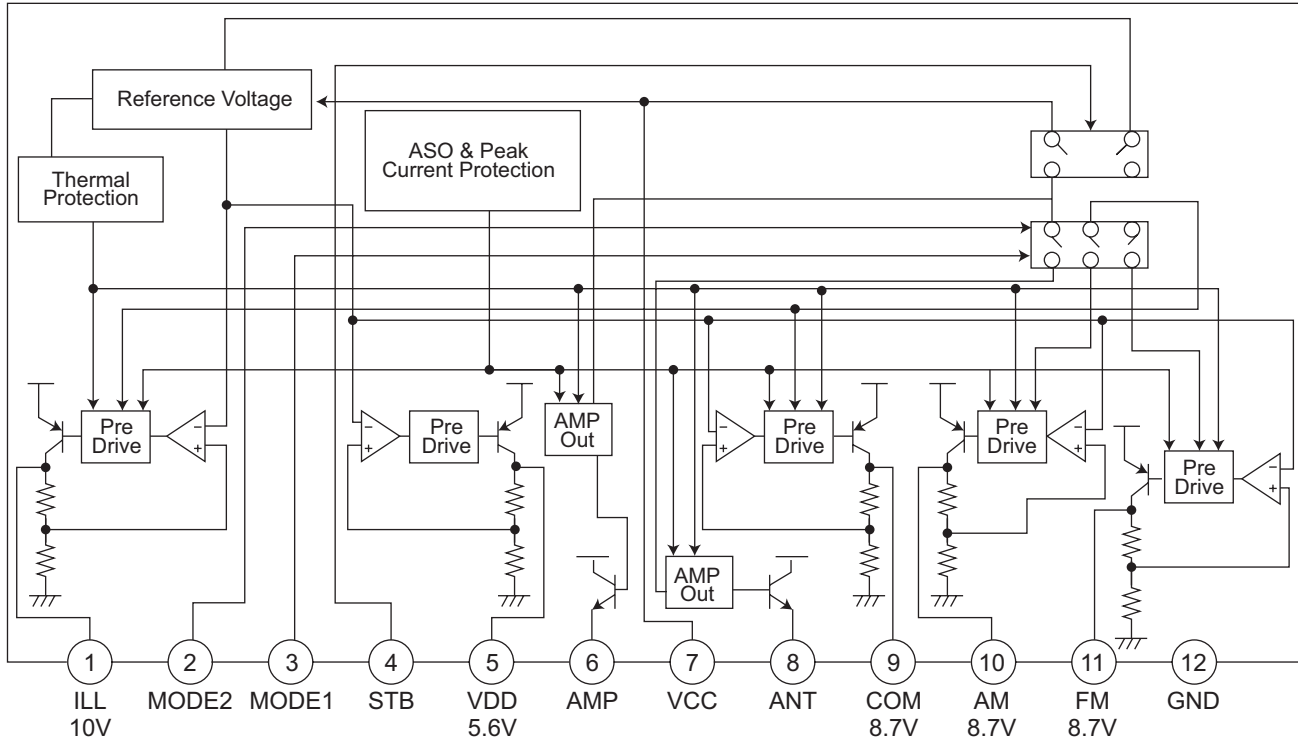


- Pin function

Pin No.	Symbol	Function
1	TAB	Header of IC
2	GND	Power GND
3	FR-	Output(-) for front Rch
4	STDBY	Stand by input
5	FR+	Output (+) for front Rch
6	VP1	Power input
7	RR-	Output (-) for rear Rch
8	GND	Power GND
9	RR+	Output (+) for rear Rch
10	RIPPLE	Ripple filter
11	RRIN	Rear Rch input
12	FRIN	Front Rch input
14	FLIN	Front Lch input
15	RLIN	Rear Lch input
16	ONTIME	Power on time control
17	RL+	Output (+) for rear Lch
18	GND	Power GND
19	RL-	Output (-) for rear Lch
20	VP3	Power input
21	FL+	Output (+) for front
22	MUTE	Muting control input
23	FL-	Output (-) for front
24	GND	Power GND
25	NC	Non connection

### 4.5 AN80T05LF (IC781) : Regulator

- Pin layout & Block diagram

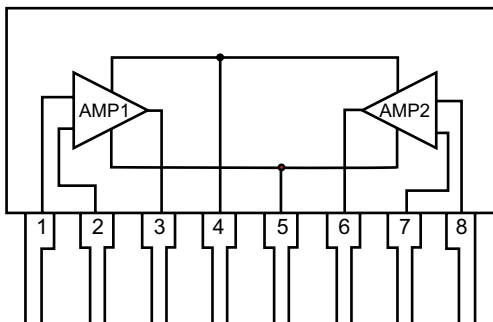


- Pin function

Pin No.	Symbol	Function
1	ILL	10V power supply for illumination.
2	MODE2	When 5V is input, becomes AM. and the antenna output is turned on.
3	MODE1	When 5V is input, becomes AM. and the output of FM is switched.
4	STB	When 5V is input outputs to ILL, COM and AMP. It is 0V usually.
5	VDD	5.6V power supply.
6	AMP	Power supply supply to remote amplifier
7	VCC	Back up. connects with ACC with it.
8	ANT	Power supply supply to auto antenna.
9	COM	8.7V power supply.
10	AM	The power supply of 8.7V to AM.
11	FM	The power supply of 8.7V to FM.
12	GND	Ground

### 4.6 UPC1228HA (IC901) : Head amp

- Pin layout & Block diagram



- Pin function

Pin No.	Symbol
1	Input 1
2	Negative feed back 1
3	Output 1
4	Power supply; +Vcc
5	Ground
6	Output 2
7	Negative feed back 2
8	Input 2





VICTOR COMPANY OF JAPAN, LIMITED  
AV & MULTIMEDIA COMPANY 10-1, 1chome, Ohwatari-machi, Maebashi-city, 371-8543, Japan

(No.49774)